CLAIMS

I claim:

1. A fluid dynamic bearing comprising:

a shaft;

a sleeve unit having a hole into which said shaft is inserted;

dynamic pressure generation grooves formed on one of the opposed faces of said shaft and said sleeve unit; and

a lubricant filled in the clearance between the opposed faces of said shaft and said sleeve unit, to which an ionic liquid is added as an electrical conductivity imparting agent.

2. A fluid dynamic bearing in accordance with claim 1, wherein said ionic liquid is an ordinary-temperature molten salt comprising a combination of an organic acid and an organic salt.

3. A fluid dynamic bearing in accordance with claim 1, wherein said ionic liquid is an ordinary-temperature molten salt comprising a combination of an organic acid and an organic salt, represented by 1-butyl-3-methylimidazolium-hexafluorophoshate or 1-butyl-3-methylimidazolium-tetrafluoroborate.

4. A fluid dynamic bearing comprising:

a shaft;

a sleeve unit having a hole into which said shaft is inserted;

dynamic pressure generation grooves formed on one of the opposed faces of said shaft and said sleeve unit; and

a lubricant filled in the clearance between the opposed faces of said shaft and said sleeve unit, to which linear alkyl sulfonate is added as an electrical conductivity imparting agent.

5. A fluid dynamic bearing comprising:

a shaft;

a sleeve unit having a hole into which said shaft is inserted;

dynamic pressure generation grooves formed on one of the opposed faces of said shaft and said sleeve unit; and

a lubricant filled in the clearance between the opposed faces of said shaft and said sleeve unit, to which a charge transfer complex is added as an electrical conductivity imparting agent.

6. A fluid dynamic bearing in accordance with claim 5, wherein said charge transfer complex serving as an electrical conductivity imparting agent is 2.4,7-

trinitrofluorenone · polyvinylcarbazole or tetrathiafulvalene (TTF) · tetracyanoquinodimethane (TCNQ).

7. A fluid dynamic bearing comprising:

a shaft;

a sleeve unit having a hole into which said shaft is inserted;

dynamic pressure generation grooves formed on one of the opposed faces of said shaft and said sleeve unit; and

a lubricant filled in the clearance between the opposed faces of said shaft and said sleeve unit, to which a mixture of an ionic polyvalent metal salt and a metal salt having a cation different from that of said ionic polyvalent metal salt is added as an electrical conductivity imparting agent.

8. A fluid dynamic bearing in accordance with claim 7, wherein a combination of chromium triisopropyl salicylate and calcium di-2-ethylhexyl succinate, a combination of aluminum diisopropyl salicylate and magnesium oleate or a combination of copper palmitate and calcium diisopropyl salicylate is used as an electrical conductivity imparting agent.

9. A fluid dynamic bearing in accordance with claim 1, wherein said dynamic pressure generation grooves formed on the opposed faces of said shaft and said sleeve unit are radial dynamic pressure grooves for generating the dynamic pressure of said lubricant for holding said shaft in the radial direction and thrust dynamic pressure grooves for generating the dynamic pressure of said lubricant for holding said shaft in the thrust direction.

10. A magnetic disk apparatus comprising:

a fluid dynamic bearing in accordance with claim 1,

a hub to which magnetic recording media are secured, and

a motor, comprising a stator coil and a rotor magnet, for rotating said shaft or said sleeve unit.